

WHAT IS CLAIMED IS:

1. A snowmobile comprising a frame assembly, a drive assembly coupled to the frame assembly and including a drive belt adapted to contact a ground surface to propel the snowmobile over the ground surface, an internal combustion engine supported by the frame assembly, the engine comprising a crankcase, a crankshaft rotatably journaled within the crankcase, a cylinder block assembly extending from the crankcase, a cylinder head assembly connected to an end of the cylinder block opposite the crankcase, and a cam drive mechanism including at least one camshaft rotatably journaled within the cylinder head assembly, and a transmission coupled to the crankshaft to transmit power from the engine to the drive assembly, wherein the cam drive mechanism is connected to the crankshaft at a first end portion of the crankshaft, and the transmission is connected to the crankshaft at a second end portion of the crankshaft opposite the first end portion.

2. The snowmobile of Claim 1, wherein the crankshaft includes a drive sprocket at the second end portion thereof, the camshaft includes a driven sprocket, and a flexible transmitter extends around the drive sprocket and the driven sprocket to drive the camshaft from the crankshaft.

3. The snowmobile of Claim 2, wherein a diameter of the driven sprocket is twice a diameter of the drive sprocket.

4. The snowmobile of Claim 1, wherein a diameter of the crankshaft at the second end portion is less than a diameter of the crankshaft at the first end portion.

5. The snowmobile of Claim 1, further comprising a flywheel magneto assembly coupled to the crankshaft at the second end portion thereof.

6. The snowmobile of Claim 5, wherein the flywheel magneto assembly comprises a rotor having a shaft, and an end of the shaft is coupled to the crankshaft at the second end portion thereof.

7. A snowmobile comprising a frame assembly, a drive assembly coupled to the frame assembly and including a drive belt adapted to contact a ground surface to propel the snowmobile over the ground surface, an internal combustion engine supported by the frame assembly, the engine comprising a crankcase, a crankshaft rotatably journaled within the crankcase, a cylinder block assembly extending from the crankcase and defining at least one cylinder bore, a piston positioned for reciprocating movement in the cylinder bore, a connecting rod coupled to the piston and to the crankshaft to transmit motion therebetween, a cylinder head assembly connected to an end of the cylinder block opposite the crankcase, and a cam drive mechanism including at least one camshaft

rotatably journaled within the cylinder head assembly, and a transmission coupled to the crankshaft to transmit power from the engine to the drive assembly, wherein the transmission and the cam drive mechanism are coupled to the crankshaft on opposite sides of the connecting rod.

5           8.    The snowmobile of Claim 7, wherein the crankshaft includes a drive sprocket at an end portion thereof, the camshaft includes a driven sprocket, and a flexible transmitter extends around the drive sprocket and the driven sprocket to drive the camshaft from the crankshaft.

10           9.    The snowmobile of Claim 8, wherein a diameter of the driven sprocket is twice a diameter of the drive sprocket.

10           10.   The snowmobile of Claim 7, wherein a diameter of the crankshaft at the drive sprocket is less than a diameter of crankshaft at the transmission.

10           11.   The snowmobile of Claim 7, further comprising a flywheel magneto assembly coupled to the end portion of the crankshaft the adjacent the drive sprocket.